Space Weather Forecast

Issued on Friday, 26 August 2022 at 01:07 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Ongoing chance of Radio Blackout throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has become Moderate, with an increasing number of C-class flares and two M-class flares, the largest being an M1.8 observed at 25/1951 UTC, originating from a region located in the southeast quadrant. There are seven sunspot regions on the visible disc, two of which are small, simple and fading in the northeast. The largest and most complex region is in the southwest quadrant. This region continues to grow in size and remains unusually aligned north to south. Another region worth of note is in the southeast quadrant and has been responsible for the recent M1.8 flare. This region is increasing in size and complexity, with proliferation of spots on its trailing side. No Earth-directed CMEs (Coronal Mass Ejections) were observed in the last 24 hours.

Solar Wind / Geomagnetic Activity: The solar wind has been rather erratic in the last 24 hours, fluctuating between 400 and 330 km/s, most likely due to a very low, below average density. The magnetic field strength was weak, with only small fluctuations observed in the important the north-south component. Resulting geomagnetic activity was Quiet.

Energetic Particles / Solar Radiation: The flux of energetic particles (high energy protons) remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Further M-class flares are likely, with a slight chance of an X-class flare

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs currently feature in this forecast. Solar winds are at slow-ambient levels but are expected to become slightly enhanced on day 2, reaching 400-450km/s. Another, more significant enhancement should follow on day 4, under the influence of a coronal hole high speed stream, with speeds reaching 500-550km/s. Geomagnetic activity is expected to be mostly Quiet with isolated Unsettled or Active intervals on days 1-3, but Quiet to Unsettled with Active intervals and a slight chance of a G1/Minor Storm on day 4 (29th).

Energetic Particles / Solar Radiation: The flux of energetic particles (high energy protons) is forecast to persist at background level but carries a slightly raised risk of an Active Storm, due to the presence of two rather complex sunspot regions in the southeast and southwest.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	5	0	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	50	50	50	50
Very Active	R3 to R5 X	No	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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